Battey Operations in Italy.—Six of this type of ovarian extirpation have been reported, with four recoveries. Case 1. Operation by Dr. De Cristoforis, of Milan; woman died of hemorrhage from one of the pedicles. 2. Dr. Franzolini, of Udine, patient cured. 3. Dr. Peruzzi, of Lugo, August 10, 1882; disease hystero-epilepsy; patient improved. 4. Dr. De Gaudenzi, of Vercelli, September 24, 1882; case, one of large *fibro-myoma uteri*, complicated with ascites; only one ovary found. Patient recovered, and tumour became atrophied. 5. Dr. Vecelli, of Venice, December 5, 1882, practised ovaro-salpingotomy of Tait, in a case of nymphomania, with entire success. 6. Dr. Giovannini, of Sant Arcangelo, December, 1882; case was one of uterine fibroma, with hemorrhage. Woman died in four days of septicæmia.

But for the fact that the Battey operations of Italy have been quite as fatal as the ordinary ovariotomies, we should object decidedly to their being placed in the same table. As it is, we believe it more fair to keep them separate in calculating the mortality of ovariotomy. We do not see why "the partial or incomplete ovariotomies" should be excluded in the enumeration. These cases add 25 to the 400, and 16 of them fatal. It is correct to exclude exploratory incisions; but it is questionable whether we ought not to count all the incomplete operations, made such by extensive adhesions, or by errors in diagnosis. Excluding the four Battey cases from the fourth hundred, and adding the 7 incomplete cases, we have 103 operations, with 80 recoveries, and 23 deaths, which gives a recovery of about $78\frac{9}{10}$ per cent., a marvellously good result, if all the cases of Italy are included in the record, when we consider that there were 49 operators in charge of the 103 patients, instead of one, or a few experienced surgeons.

R. P. H.

ART. XVII.—*Photo-Micrographs and how to make them, Illustrated by Forty-seven Photographs of Microscopic Objects, Photo-Micrographs, reproduced by the Heliotype Process.* By GEORGE M. STERNBERG, M.D., F.R.M.S., Major and Surgeon, United States Army, etc. 8vo. pp. 204. Boston: James R. Osgood & Co., 1883.

THE recent *renaissance* in amateur photography has created an especially opportune moment for the appearance of a full and reliable guide on the above fascinating subject, for who has microscope and camera without attempting to record on the sensitive plate the wonders of a hidden world? How far this want is met by the volume before us, is largely dependent upon the experience of the reader in this special line of work. To those anticipating a first trial in this direction, and entirely ignorant of the necessary details, the elementary instructions will be of great service; to those who have engaged in photo-micrography with any degree of success we doubt if the book in question offers much additional information, and but few novelties. We confess to a sense of disappointment on finishing the scant half of the volume devoted to the subject proper: the anticipations of valuable hints, from the extended experience of one so constantly engaged in photo-micrography as has been the author, have not been realized. With the unequalled work of the master-hand before us, it is indeed a task of difficulty to supplement and improve upon familiar methods, where sunlight is employed. Dr. Sternberg has added little of value to the already well-known methods of Dr. Woodward.

Misconceptions regarding photo-micrographs are so widely spread that a few paragraphs found in the introduction are well worth presenting: the first two will answer a common inquiry.

> "*Photo-micrographs* are sun-pictures of microscopic objects more or less magnified.
>
> A *micro-photograph* is a microscopic picture of an object which can be seen by the naked eye. . . . Sun-pictures, as compared with hand-work, have the advantage of being quickly made, and of being absolutely true to nature. . . . By photography, the most delicate lines or shades are preserved, and one who has no skill in drawing is able to make a permanent record of what he sees in the course of his microscopical researches. That is, *within certain limits*, for not every microscopic object is suited for photography; and those who imagine that it will be a very simple matter to make photographs of all objects in their collection . . . . are doomed to disappointment. Candor compels the admission that very many objects which seen under the microscope are very beautiful, cannot be successfully photographed. This is true of a majority of histological and pathological preparations not mounted especially for this purpose. It is true, as regards opaque objects, and objects of a deep-red, yellow, orange, or brown colour, as these are practically opaque for actinic rays. In short success in photo-micrography depends to a considerable extent upon the selection of suitable objects, and upon mounting these in the best manner for the purpose in view."

Within the last half dozen sentences are expressed the gist of photo-micrography, a disregard for which causes so much of the disappointment incident to this work. For successful photographs, objects *must be suitable*, and for powers over one hundred diameters, all parts of the object must be within the same plane; this is especially true of animal tissues of which the sections must be of the greatest tenuity, embracing absolutely little more than a single layer of elements. But success—especially true of histological subjects—depends upon suitable staining as well as upon evenness, *differentiation* being a quality of the greatest importance; we believe the experience of many regarding carmine is quite different from the views expressed, since well differentiated carmine specimens are usually among those yielding the best results: in fact, *contrast* is practically more important than colour, deeply stained silver preparations frequently yielding excellent pictures by both sun and artificial light.

The author wisely suggests to the beginner, that a first attempt be made with low powers, and the simplest conditions of illumination, as with light reflected from blue sky directly through the object without the intervention of any condenser, the microscope and camera being, however, inclined eight or ten degrees from horizontal to obtain uninterrupted rays from the clear sky.

Just here the opportunity of adding really valuable new matter, such as would have been appreciated by the majority of those attempting this modification of photography at present, has been ignored by the author confining his instructions so closely to work by sunlight. Nine out of every ten who begin photo-micrography will prefer, results being equal, to devote the leisure of the evening rather than encroach upon the busy hours of the day. Had our author devoted enough time to the results obtainable by simple lamplight to develop its capabilities, and then fully recorded his experience in the present pages, he would have added matter of service to the majority of amateur workers. For the specialist whose almost daily needs require photography, especially with high amplifications, sunlight is undoubtedly to be preferred, but to the amateur, for whose instruction this book seems to have been especially written, lamplight recommends itself by the simplicity and ease with which it may be employed—the results, with ordinary lenses and moderate amplification, being almost, if not fully, equal to those obtained by sunlight, as is testified to by a host of excellent negatives, and the experience of now many workers.

For the higher powers—five hundred diameters and upward—work by daylight without a heliostat is at best tedious and unsatisfactory, as is admitted by our author himself, where for an amplification of six hundred diam., with a Zeiss $\frac{1}{18}$ oil immersion, half an hour was required as an exposure with an instantaneous plate; with Zeiss $\frac{1}{12}$ oil immersion and amplifier, giving a magnification of over twelve hundred diam., on a plate by no means instantaneous, fifteen minutes sufficed to produce an excellent negative of Podura, with the illumination from a small flamed oil lamp—the rays passing through a bull's-eye and achromatic condensers. For convenience and best results in working by sunlight, for powers over three hundred diam., a heliostat is almost indispensable; to obtain the latter and the necessary accessory apparatus requires some considerable pecuniary outlay; to manage the light so obtained to the best advantage requires nicety of manipulation. It may be remarked, that in making the photographs illustrating the book, Dr. Sternberg has invariably employed the heliostat when the amplification desirable was over two hundred diameters. We reiterate, then, as the conclusions from an experience of considerable extent with both sunlight and heliostat, and lamplight, that for moderate powers, say up to two hundred and fifty diam., the capabilities of lamplight equal those of sunlight; that for higher powers, sunlight possesses decided advantages, but can only be utilized with satisfaction when a heliostat or a substitute is employed; that when direct sunlight is not employed for high powers, as good results may be obtained more readily with lamplight than with diffused sunlight.

The statement that required amplification should always be obtained with the lowest lens possible, removing the plate to a greater distance—even to eight or ten feet—rather than employ a higher objective, should, perhaps, be qualified by a regard for the character of both the object to be photographed, and of the lens used, since an objective under such conditions may fail entirely to show minute details of structure, which are clearly brought out by a lower amplification when a higher glass possessing greater powers of resolution is employed.

The arrangement for focusing described by the author, by means of cords passing over the adjustment wheels, with counterpoising weights attached, possesses decided advantages over the expensive and cumbersome appliance formerly used by many after the apparatus of the Army Medical Museum. This device for moving the fine adjustment was employed by the reviewer five years ago, and ever since has given perfect satisfaction; he can add his testimony to that of Dr. Sternberg regarding its perfectly delicate and accurate working: it seems, as frequently occurs, the same device for overcoming the difficulties and annoyance incident to the more complicated and expensive arrangement was contrived independently by two workers. The necessity of applying a cord to the coarse adjustment will not be felt by those who prefer to keep the focusing screen within four or five feet of the object, since, by having a mirror properly placed at the end of the board supporting the apparatus, the ground-glass of the camera is clearly seen, a matter of great advantage when arranging illumination and hunting fields without uncoupling the camera and microscope, which is especially desirable when there is danger of disturbing the object. By a hand-mirror held near the ground-glass, approximate focusing may readily be accomplished while the operator is stationed at the microscope.

Our author having had experience chiefly with central light, photography by oblique illumination is not discussed. The advice to those purposing a trial in this more difficult field to procure Woodward's "oblique illuminator" may be supplemented by the recommendation rather to seek the aid of one of the recent wide-angled *immersion condensers*, which furnish light of the greatest obliquity, while possessing the great advantages of being readily manipulated and of furnishing central light at a moment's notice by simply turning a collar or milled head, an advantage which only those engaged in work over the severest tests will fully appreciate. The sections on "Black-Ground Illumination" and "Reflected Light" are interesting, the experiments being illustrated by photographs found in the latter part of the book.

While discussing the arrangements and fixtures where a darkened room constitutes the camera-box—a plan of work, by the way, which certainly, for the majority of workers, is less convenient than with the ordinary camera—Dr. Sternberg justly calls attention to the admirable views of microscopic objects, which may be had by receiving the image on a white screen. It may be added that, by the slight modification of such a "Solar Microscope," by placing a mirror in the path of the rays from the instrument they may be reflected to the drawing-board, when with the greatest ease and accuracy a faithful sketch may be made. In practice, the reviewer employs for such purpose a circular mirror of fine quality, the image of whose form readily announces distorted reflections on account of improper angle, as, when properly adjusted, the reflected field should be a true illuminated circle.

Within the next half dozen sections, the various manipulations incident to making the negative will be found, including the chemical processes of the dark-room, to which is added a section on making positives on glass for use in the lantern. While fully appreciating the impossibility of giving exact figures, yet the work of the beginner would be much facilitated by more extended and closer data regarding length of exposure; without being committal, it would have been desirable to state the average length of exposure, *under certain definite conditions of illumination*, for the lenses of the various usual focal lengths. The formula for the ferrous-oxalate developer would be improved by the usual addition of citric or oxalic acid to the oxalate solution, and sulphuric acid to that of the iron.

The last twenty-five pages of the book proper are devoted to "Selection and Preparation of Objects from Photography," under which heading are briefly considered a number of unicellular organisms, infusoria, spores, animal cells, including blood-corpuscles, vegetable tissues, diatoms, insects, and, lastly, animal histology and pathology, regarding which latter our author confesses to have given but little time, having devoted his attention "mostly to photographing unicellular organisms, and especially to the Bacteria."

The remaining pages of the book—almost a hundred—are placed at the disposal of the more or less extended and popular descriptions of the accompanying forty-seven heliotype reproductions of the photo-micrographs, embracing a variety of objects, as well as illustrating the results obtained by the methods of work described in the previous text. The figures range in amplification from 12 to 1450 diameters; in objectives, from the 2 inch to the $\frac{1}{18}$; in quality, from excellent to execrably bad. In turning over these, one notes the quite disproportional excellence of a certain class of objects—bacteria and bloods; the explanation, however, the author himself supplies by stating that these have claimed his special attention. The photographs of blood and of *Navicula Lyra* are really fine, and deserve generous praise; the remaining plates are of varying degrees of excellence, among the better being, naturally, those of the diatomaceæ by central light, particularly the square of Möller's *Typen-Platte*, and *Triceratium Flavus;* plate IV. is decidedly the worst in the book—the photograph of Podura scale being little better than a caricature.

The wisdom of allotting so many pages to popular descriptions, which, from the premises, must be very incomplete, and but partially satisfactory, admits of question; however, the desire to interest and demonstrate to popular readers biological facts, influenced, no doubt, the author in his decision: the especial truth in view was "that the lowest living things are unicellular organisms, and that the tissues of the higher plants and animals are made up of cells,"

While the generous distributions of space in margin and type are, probably, features desirable in the book as a candidate for popular favour, a closer economy of space would certainly render the volume more acceptable considered as a scientific contribution. In conclusion, we repeat, for beginners who propose to work by daylight, that the book will undoubtedly form a very valuable source of information and assistance; those already practically familiar with the instructions of Dr. Woodward will, probably, on the whole, find little to induce a change in their methods.

G. A. P.

Art. XVIII.—*Traité Clinique et Pratique des Maladies du Cœur et de la Crosse de l'Aorte.* Par MICHEL PETER, Professeur à la Faculté de Médecine de Paris, etc. Tome I. 8vo. pp. 844. Paris, Baillière et Fils, 1883.

ALREADY Michel Peter has become favourably known to American readers by a late edition, the sixth, of the admirable clinical lectures of Trousseau. Further, he has himself given us an insight into his peculiar ideas and special line of work by a treatise in two volumes of Medical Clinic, which even now has reached a third edition.

We are well prepared, therefore, to peruse with interest an exhaustive book from his pen, on the practical and bedside aspects of diseases of the heart, and of the arch of the aorta. While he professes in his preface to have borrowed explanations from anatomy and physiology, wherever he has been able to give greater precision and clearness to our knowledge of the diseases which he treats, he disclaims entirely those hazardous analogies from experiments on animals which are far from lending additional proof to the observation or interpretation of new facts. He directs the attention of his readers particularly to the consideration of those chapters in his work in which he claims to have elaborated fresh opinions, and trusts modestly